United States
Environmental Protection
Agency

Solid Waste and
Emergency Response
(5102G)

EPA 542-B-99-004
August 1999
www.clu-in.org
www.epa.gov/tio

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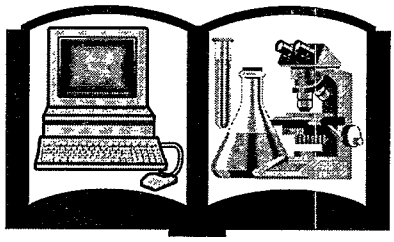
August 1999 Update

1999 UPDATE



LATEST EDITION

Availability Information

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OSWER Directives:
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Superfund Docket & Document Center
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superfund.documentcenter@epa.gov
Web: **www.epa.gov/swerust1/directiv/** (or search on "oswer directive" at **www.epa.gov/swerrims/oswrrsch.htm**)

Documents with PB numbers:
National Technical Information Service (NTIS)
5285 Port Royal Rd.
Springfield, VA 22161
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Web: **www.ntis.gov/**

Note: Many documents are available electronically on internet web sites (see addresses and symbols below). If a document is not accompanied by a web symbol or has been removed from a web site, check the NEPIS site listed on the next page for possible availability, or contact NTIS.

§ U.S. EPA Technology Innovation Office (TIO)
www.epa.gov/tio/

▲ U.S. EPA TIO Hazardous Waste Clean-Up Information (CLU-IN)
www.clu-in.org

❂ U.S. EPA Office of Research and Development (ORD), Cincinnati, OH (513) 569-7562
www.epa.gov/ORD/

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Ω U.S. EPA National Risk Management Research Laboratory (NRMRL), Subsurface Remediation Information Center (SRIC), Robert S. Kerr Environmental Research Center, Ada, OK: (580) 436-8651; Fax: (580) 436-8503
www.epa.gov/ada/

✢ U.S. EPA Superfund Program
www.epa.gov/superfund/resources/

❍ U.S. EPA Environmental Technology Verification Program (ETV) - **see section M for additional information**
www.epa.gov/etv/

(cont.)

❖ Remediation Technologies Development Forum (RTDF) - **see section O for additional information**
www.rtdf.org/

● Federal Remediation Technologies Roundtable (FRTR) - **see section O for additional information**
www.frtr.gov/

⊕ EPA's National Environmental Publications Information Service (NEPIS) web site offers more than 7000 EPA/EPA-related full-text documents, with more added daily. These imaged documents can be viewed or printed only on a page-by-page basis. Documents can be located most quickly by document number (e.g., 542b98005).
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EPA 542-R-98-015, PB99-106775

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Volume 13: Debris and Surface Cleaning Technologies, and Other Miscellaneous Technologies
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Technology Developers: Looking for Information? (Brochure)
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- Lasagna™ Public-Private Partnership
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- In Situ Flushing Action Team
  EPA 542-F-97-013 ⊕
- Phytoremediation of Organics Action Team
  EPA 542-F-97-014 ⊕
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EPA's Small Business Innovation Research (SBIR) Program: Innovative Solutions for Environmental Problems
EPA 600-F-96-021 ⊕

B2. Superfund Innovative Technology Evaluation Program - see also the SITE web site (▼) for more full text reports

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Note: The following sections (C - J) list some documents for which several versions have been produced. Full Reports average >20 pages in length, Bulletins average 10-20 pages in length, Summaries and Capsules average 4 pages in length.

C. Ground Water (*In Situ* Treatment)

see also GWRTAC, section M

C1. General

Field Applications of In Situ Remediation Technologies: Groundwater Circulation Wells
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⊥ CLU-IN ✪ ORD Ω SRIC ● FRTR ❖ RTDF § TIO ✻ OUST ❒ OSWER ▼ SITE ✢ SF ⊕ NEPIS ○ ETV
See availability information on page one

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Pump and Treat Ground-Water Remediation: A Guide for Decision Makers and Practitioners
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⅄ CLU-IN ❂ ORD Ω SRIC ● FRTR ❖ RTDF § TIO ❋ OUST ❒ OSWER ▼ SITE ✢ SF ⊕ NEPIS ❍ ETV
See availability information on page one

Demonstrating Remediation by Natural Attenuation Using Numerical Ground Water Models and Annual Ground Water Sampling
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Commonly Asked Questions Regarding the Use of Natural Attenuation for Chlorinated Solvent Spills at Federal Facilities
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E. Bioremediation

E1. General

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Volume 5: Bioremediation and Vitrification
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Volume II: Bioventing Design Manual
EPA 540-R-95-534B ❂

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Hill Air Force Base Superfund Site, UT
EPA 540-F-95-506C

Libby Groundwater Superfund Site, MT
EPA 540-F-95-506A

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Hill Air Force Base, UT
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E4. Bioremediation In The Field Search System - see section M for additional information

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F. Phytoremediation

A Citizen's Guide to Phytoremediation
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G. Soil Vapor Extraction & Enhancements

Remediation Case Studies: ● ⊕
Volume 3: Soil Vapor Extraction
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EPA 542-R-98-012, PB99-106742

Multi-Phase Extraction: State-of-the-Practice
EPA 542-R-99-004 ⅄ §

Supplemental Bulletin, Multi-Phase Extraction (MPE) Technology for VOCs in Soil and Groundwater: Presumptive Remedy Fact Sheet
EPA 540-F-97-004, PB97-963501 ✢

Analysis of Selected Enhancements for Soil Vapor Extraction
EPA 542-R-97-007 ⅄ §

Michigan Soil Vapor Extraction Remediation (MISER) Model: A Computer Program to Model Soil Vapor Extraction and Bioventing of Organic Chemicals in Unsaturated Geological Material
EPA 600-R-97-099 ⊕
Project Summary **EPA 600-SR-97-099** Ω

Soil Vapor Extraction (SVE) Enhancement Technology Resource Guide: Air Sparging, Bioventing, Fracturing, Thermal Enhancements
EPA 542-B-95-003 ⅄ ⊕ §

Soil Vapor Extraction Implementation Experiences: Engineering Forum Issue Paper
EPA 540-F-95-030, PB95-963315 ⅄ §

Unterdruck-Verdampfer-Brunnen Technology (UVB) Vacuum Vaporizing Well: Demonstration Bulletin
EPA 540-MR-95-500 ▼
Site Technology Capsule **EPA 540-R-95-500A** ▼

Zenon Cross-Flow Pervaporation Technology, Zenon Environmental, Inc.: Demonstration Bulletin
EPA 540-MR-95-511 ⊕
Site Technology Capsule **EPA 540-R-95-511A** ⊕

Field Investigation of Effectiveness of Soil Vapor Extraction Technology (Final Project Report)
EPA 600-R-94-142, PB94-205531

H. Physical/Chemical Treatment

H1. General

Field Applications of In Situ Remediation Technologies: Chemical Oxidation
EPA 542-R-98-008 ⅄ §

Advanced Photochemical Oxidation Processes: Handbook
EPA 625-R-98-004, PB99-151169

Integration of Photocatalytic Oxidation with Air Stripping of Contaminated Aquifers: SITE Emerging Technology Summary
EPA 540-SR-98-504

Molecular Bonding System® for Heavy Metals Stabilization, Solucorp® Industries, Ltd.: Innovative Technology Evaluation Report
EPA 540-R-97-507 ▼
Demonstration Bulletin **EPA/540-MR-97/507** ▼

Simultaneous Destruction of Organics and Stabilization of Metals in Soils: Emerging Technology Summary
EPA 540-SR-98-500 ▼

Disc Tube™ Module Technology Rochem Separation Systems, Inc.: Innovative Technology Evaluation Report
EPA 540-R-96-507, PB 99-129827 ▼
SITE Technology Capsule **EPA 540-R-96-507a** ▼

Geotech Development Corporation Cold Top Ex-Situ Vitrification Technology: SITE Technology Capsule
EPA 540-R-97-506a ▼

In Situ Electrokinetic Extraction System: Sandia National Laboratories Demonstration Bulletin
EPA 540-MR-97-509 ▼

Electrokinetic Soil Processing, Electrokinetics, Inc.: Emerging Technology Bulletin
EPA 540-F-95-504 ⊕

Combined Chemical and Biological Oxidation of Slurry Phase Polycyclic Aromatic Hydrocarbons
EPA 600-A-95-065, PB95-217642

Electron Beam Technology, High Voltage Environmental Applications Inc.: Innovative Technology Evaluation Report
EPA 540-R-96-504 ▼
Demonstration Bulletin **EPA 540-MR-96-504** ▼

Metal-Enhanced Dechlorination of Volatile Organic Compounds Using an Aboveground Reactor
EPA 540-R-96-503 ▼
Site Technology Capsule **EPA 540-R-96-503a** ⊕

H2. Soil Washing

Remediation Case Studies, Volume 4: Thermal Desorption, Soil Washing, and In Situ Vitrification
EPA 542-R-95-005, PB95-182945 ● ⊕

Biogenesis Soil Washing Technology: Innovative Technology Evaluation Report
EPA 540-R-93-510 ⊕

H3. Solvent Extraction

Remediation Case Studies, Volume 7: Ex Situ Soil Treatment Technologies (Bioremediation, Solvent Extraction, Thermal Desorption)
EPA 542-R-98-011, PB99-118481 ● ⊕

Removal of PCBs From Contaminated Soil Using the CF Systems (trade name) Solvent Extraction Process: A Treatability Study
EPA 540-R-95-505, PB95-199030
Project Summary **EPA 540-SR-95-505** ⊕

Solvent Extraction: Engineering Bulletin
EPA 540-S-94-503, PB94-190477 ⊕

Solvent Extraction Treatment System, Terra-Kleen Response Group, Inc.: Innovative Technology Evaluation Report
EPA 540-R-94-521 ▼

I. Other Conferences & International Surveys

NATO/CCMS Pilot Study Evaluation of Demonstrated and Emerging Technologies for the Treatment and Clean Up of Contaminated Land and Groundwater:
Phase II Final Report
EPA 542-R-98-001a ⅄ §
Phase II Overview Report
EPA 542-R-98-001b ⅄ §
Phase II Appendix IV—Project Summaries
EPA 542-R-98-001c ⅄ §
Phase III 1998 Annual Report
EPA 542-R-98-002 ⅄ §
Phase III 1998 Special Session: Treatment Walls and Permeable Reactive Barriers
EPA 542-R-98-003 ⅄ §

National Conference on Management and Treatment of Contaminated Sediments. Proceedings, Cincinnati, Ohio, May 13-14, 1997
EPA 625-R-98-001 ❂

J. Site Characterization

J1. General

Innovations in Site Characterization: Interim Guide to Preparing Case Studies
EPA 542-B-98-009 ▼ ⅄ §

DNAPL Site Characterization
OSWER Directive 9355.4-16FS, PB94-963317

Field Analytical and Site Characterization Technologies: Summary of Applications
EPA 542-R-97-011 ⅄ §

Innovations in Site Characterization Case Study: Hanscom Air Force Base, Operable Unit 1 (Sites 1, 2, and 3)
EPA 542-R-98-006, PB99-101362 ⅄ §

Application of the Electromagnetic Borehole Flowmeter
EPA 600-R-98-058 ⊕
Project Summary **EPA 600-SR-98-058** Ω

Innovations in Site Characterization: Dexsil L2000 PCB/ Chloride Analyzer for Drum Surfaces
EPA 542-R-99-003 ⅄

Geophysical Techniques to Locate DNAPLs: Profiles of Federally Funded Projects
EPA 542-R-98-020 ⅄

Field Sampling and Selecting On-Site Analytical Methods for Explosives in Soil: Federal Facilities Forum Issue Paper
EPA 540-R-97-501, PB97-186613 ⊕

Field Sampling and Analysis Technologies Matrix and Reference Guide
EPA 542-B-98-002 ●

Field Validation of a Penetrometer-Based Fiber Optic Petroleum, Oil, and Lubricant (POL) Sensor
EPA 600-R-97-055, PB98-400172 ⊕
Project Summary **EPA 600-SR-97-055** ✪

Environmental Technology Verification (ETV) Program: Site Characterization and Monitoring Technologies Pilot
EPA 542-F-99-009 ⅄

Characterization of Organic Matter in Soil and Aquifer Solids: Environmental Research Brief
EPA 600-S-97-001 ✪

Hydrogeologic Characterization of Fractured Rock Formations: A Guide for Groundwater Remediators: Project Summary
EPA 600-S-96-001 ✪

Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)
EPA 402-R-97-016, S/N 052-020-00639-3 (GPO)

Expedited Site Assessment Tools For Underground Storage Tank Cleanups
EPA 510-B-97-001, S/N 055-000-00564-8 (GPO) ✻

J2. Environmental Technology Verification (ETV) Program: Technology Verification Reports ⅄ § ○

Cone Penetrometer-Deployed Sensor
The Rapid Optical Screening Tool (ROST™) Laser-Induced Fluorescence (LIF) System for Screening of Petroleum Hydrocarbons in Subsurface Soils
EPA 600-R-97-020

Site Characterization Analysis Penetrometer System (SCAPS) Laser-Induced Fluorescence (LIF) Sensor and Support System
EPA 600-R-97-019

Field Portable Gas Chromatograph/Mass Spectrometer
Viking Instruments Corporation SpectraTrak™ 672: Environmental Technology Verification Report
EPA 600-R-97-148

Bruker-Franzen Analytical Systems, Inc. EM640™ : Environmental Technology Verification Report
EPA 600-R-97-149

Field Portable X-Ray Fluorescence Analyzer
HNU Systems SEFA-P
EPA 600-R-97-144

Metorex X-MET 920-MP
EPA 600-R-97-151

Metorex X-MET 920-P and 940
EPA 600-R-97-146

Niton XL Spectrum Analyzer
EPA 600-R-97-150

Scitec Map Spectrum Analyzer
EPA 600-R-97-147

Spectrace TN 9000 and TN Pb Field Portable X-Ray Fluorescence Analyzers
EPA 600-R-97-145

PCB Analysis Technologies
Electrochemical Technique/Ion Specific Electrode: Dexsil Corporation L2000 PCB/Chloride Analyzer
EPA 600-R-98-109

Portable Gas Chromatograph/Surface Acoustic Wave Detector: Electric Sensor Technology 4100 Vapor Detector
EPA 600-R-98-114

Immunoassay Kit: Envirologix, Inc. PCB in Soil Tube Assay
EPA 600-R-98-173

Immunoassay Kit: Hach Company PCB Immunoassay Kit
EPA 600-R-98-110

Immunoassay Kit: Strategic Diagnostics Inc. D TECH PCB Test Kit
EPA 600-R-98-112

Immunoassay Kit: Strategic Diagnostics Inc. EnviroGard PCB Test Kit
EPA 600-R-98-113

Immunoassay Kit: Strategic Diagnostics Inc. RaPID Assay System for PCB Analysis
EPA 600-R-98-111

Soil/Soil Gas Sampling Technology
Quadrel Services, Inc. EMFLUX Soil Gas System
EPA 600-R-98-096

W. L. Gore & Associates Inc. GORE-SORBER Screening Survey
EPA 600-R-98-095

Art's Manufacturing and Supply AMS™ Dual Tube Liner Sampler
EPA 600-R-98-093

Clements Associates, Inc. JMC Environmentalist's Subsoil Probe
EPA 600-R-98-091

Geoprobe Systems, Inc. Large-bore Soil Sampler
EPA 600-R-98-092

Simulprobe Technologies, Inc. Core Barrel Sampler
EPA 600-R-98-094

Well-Head Monitoring for VOCs
Field-Portable Gas Chromatograph: Electronic Sensor Technology, Model 4100
EPA 600-R-98-141

Field-Portable Gas Chromatograph: Perkin-Elmer Photovac, Voyager
EPA 600-R-98-144

Field-Portable Gas Chromatograph: Sentex Systems, Inc. Scentograph Plus II
EPA 600-R-98-145

Field-Portable Gas Chromatograph/Gas Spectrometer: Inficon, Inc., HAPSITE with Headspace Sampling Accessory
EPA 600-R-98-142

Photoacoustic Spectrophotometer: Innova AirTech Instruments Type 1312 Multi-Gas Monitor
EPA 600-R-98-143

J3. Superfund Innovative Technologies Evaluation (SITE) Program

HNU-Hanby PCP Immunoassay Test Kit
EPA 540-R-95-515, PB96-116496 ▼
Demonstration Bulletin **EPA 540-MR-95-515** ⊕

Field Analytical Screening Program, PCP Method: Innovative Technology Evaluation Report
EPA 540-R-95-528, PB96-134184 ▼
Demonstration Bulletin **EPA 540-MR-95-528** ⊕

PCP Immunoassay Technologies: Innovative Technology Evaluation Report
EPA 540-R-95-514 ▼
Demonstration Bulletin **EPA 540-MR-95-514** ⊕

K. Technical Support

Office of Research and Development Technical Assistance Directory
EPA 600-K-97-001 ❂

Guide To Documenting and Managing Cost and Performance Information for Remediation Projects
EPA 542-B-98-007 ●

Land Remediation and Pollution Control Division: Science and Technology to Treat Contaminated Soils, Sludges, and Sediments
EPA 540-F-98-501 ⊕

Underground Storage Tank Program Directory
EPA 510-B-98-003 ⊕

L. Community Involvement

Second document numbers listed after the titles below are those for Spanish versions of these guides.

El segundo número de los documentos enumerados corresponde a la version en español de las guías.

Citizen's Guides (series update to begin in 1999):

Citizens Guides to Understanding Innovative Technologies (a listing of all Citizens Guides, including those available in Spanish)

Bioremediation
EPA 542-F-96-007; EPA 542-F-96-023 ⅄ §

Chemical Dehalogenation
EPA 542-F-96-004; EPA 542-F-96-020 ⅄ §

Innovative Treatment Technologies for Contaminated Soils, Sludges, Sediments, and Debris
EPA 542-F-96-001; EPA 542-F-96-017 ⅄ §

In Situ Soil Flushing
EPA 542-F-96-006; EPA 542-F-96-022 ⅄ §

Natural Attenuation
EPA 542-F-96-015; EPA 542-F-96-026 ⅄ §

Phytoremediation
EPA 542-F-98-011; EPA 542-F-96-025 ⅄ §

Soil Vapor Extraction and Air Sparging
EPA 542-F-96-008; EPA 542-F-96-024 ⅄ §

⅄ CLU-IN ❂ ORD Ω SRIC ● FRTR ❖ RTDF § TIO ❋ OUST ❒ OSWER ▼ SITE ✢ SF ⊕ NEPIS ❍ ETV
See availability information on page one

Soil Washing
EPA 542-F-96-002; EPA 542-F-96-018 ⅄ §

Solvent Extraction
EPA 542-F-96-003; EPA 542-F-96-019 ⅄ §

Treatment Walls
EPA 542-F-96-016; EPA 542-F-96-027 ⅄ §

Understanding Presumptive Remedies
EPA 540-F-97-019, PB97-963303 ✢

M. Electronic Resources: Web Sites/ Databases/Software/Listservers

EPA's TIO Hazardous Waste Clean-up Information Web Site: CLU-IN
See page 15 for details.

EPA REACH IT
See page 15 for details.

TechDirect Technology Information Service
See page 14 for details.

Alternative Treatment Technology Information Center (ATTIC)
A comprehensive database providing current information on innovative treatment technologies. ORD's ATTIC Online is available at **www.epa.gov/attic/index.html.**

Bioremediation in the Field Search System (BFSS):
PC-based software that provides information on approximately 500 waste sites across the U.S. where bioremediation is being tested or implemented or has been completed. Version 2.1 is available from the ORD web site (**www.epa.gov/ORD/BBS.html/**) and from CLU-IN. Diskettes are available from ORD publications at (513) 569-7562. A database update is scheduled for 1999.

Remediation Technologies Screening Matrix and Reference Guide, Version 3.0
An exhaustive cross-reference of technology descriptions, site characterization techniques, and contaminants.
PB98-108590 ●

Field Sampling and Analysis Technologies Matrix and Reference Guide, First Edition
This document is intended to provide comparative screening information on analytical and sampling technologies.
EPA 542-B-98-002, PB99-101685INZ ●

Completed North American Innovative Technology Demonstration Projects Database ⅄
A searchable version of the report can be downloaded.

Environmental Technology Verification (ETV) Web Site:
ETV was created to accelerate the entrance of new environmental technologies into the marketplace by verifying their performance in partnership with DOE's Sandia National Laboratories and Oak Ridge National Laboratories. For more information, visit the ETV web site at **www.epa.gov/etv** or contact the ETV Pilot Managers:
Eric Koglin, EPA, (702) 798-2432
Rodger Jenkins, Oak Ridge, (423) 576-8594
Dan Horschel, Sandia, (505) 845-9836

Ground-Water Remediation Technologies Analysis Center (GWRTAC) Web Site:
GWRTC is operated by the National Environmental Technology Applications Center (NETAC), in association with the University of Pittsburgh's Environmental Engineering Program, under a cooperative agreement with the U.S. EPA's TIO. GWRTAC disseminates information on innovative ground-water remediation technologies through information available in hard copy or on the web site at **www.grwrtac.org.**
Call (800) 373-1973, or (412) 826-5320, ext. 215;
Fax: (412) 826-5552; e-mail: gwrtac@netac.org.

Tank Racer 99: Software that estimates corrective action costs at underground storage tank sites.
$1,500.00/person (multi-user discounts available)
Contact Talisman Partners, Ltd., Englewood, CO, at (303) 771-3103 or visit **www.talpart.com.**

BIOPLUME III Ω
The natural attenuation decision support system software models two-dimensional contaminant transport under the influence of oxygen, nitrate, iron, sulfate, and methanogenic biodegradation.

NATO/CCMS Pilot Study Evaluation of Demonstrated and Emerging Technologies for the Treatment and Clean Up of Contaminated Land and Groundwater. Pilot Study Reports, 1985-1998
EPA 542-C-98-004 (CD-ROM)
Contains the following reports:
Phase II, Interim Status Report No. 203
EPA 542-R-95-006, PB95-227849 ⅄ §
Phase II Final Report
EPA 542-R-98-001a ⅄ §
Phase II Overview Report
EPA 542-R-98-001b ⅄ §
Phase II Appendix IV—Project Summaries
EPA 542-R-98-001c ⅄ §
Phase III 1998 Annual Report
EPA 542-R-98-002 ⅄ §
Phase III 1998 Special Session: Treatment Walls and Permeable Reactive Barriers
EPA 542-R-98-003 ⅄ §

Site Characterization Library: National Exposure Research Laboratory (NERL), Las Vegas, Volume 1 (Release 2) (CD-ROM)
EPA 600-C-98-001
This electronic library contains dozens of electronic documents and computer programs related to the characterization of hazardous waste sites. It is available from the National Service Center for Environmental Publications (NSCEP) while quantities last.

Information Sources for Innovative Remediation and Site Characterization Technologies (CD ROM)
EPA 542-C-98-003
This electronic resource library contains over 60 items: bibliographies, status reports, case studies, engineering analyses, and fact sheets. It is available from the NSCEP.

N. Technology Newsletters

Tech Trends (a newsletter on applied technologies for Superfund removals and remedial actions and for RCRA corrective actions)
Latest issue:
May 1999, Issue No. 33
EPA 542-N-99-003 ⅄

Ground Water Currents (a newsletter on innovative ground-water treatment for Superfund remediation and RCRA corrective action)
Latest issue:
June 1999, Issue No. 32
EPA 542-N-99-004 ⅄

Technology Transfer Highlights
Latest Issue: (updated annually)
September 1998
EPA 625-N-98-001
www.epa.gov/ttbnrmrl

RTDF Update (a progress report on the Remediation Technologies Development Forum (RTDF))
Latest issue:
December 1998
EPA 542-F-98-019 ❖

Contaminated Sediments News
Latest Issue:
Number 23, Spring 1999
EPA 823-N-99-003

O. Other Federal Programs and Partnerships

***See page one for web addresses**

Federal Remediation Technologies Roundtable (FRTR)
The Federal Remediation Technologies Roundtable is a forum for joint activity regarding the development and demonstration of innovative technologies for hazardous waste site remediation. Member agencies include EPA, DoD, DOE, and DOI. Links to case studies and Cost and Performance Reports for various technologies implemented at Superfund sites can be found on this web site.

Remediation Technologies Development Forum (RTDF)
The Remediation Technologies Development Forum is a consortium of partners from government, industry, and academia working to develop safer, more effective, and less costly hazardous waste characterization and treatment technologies.

P. Innovative Site Remediation Engineering Technology Monographs

The WASTECH Consortium (the American Academy of Environmental Engineers (AAEE), EPA's Technology Innovation Office (TIO), DoD, and DOE) has developed a series of comprehensive, authoritative engineering monographs. These peer-reviewed state-of-practice publications range in size from 150-250 pages and provide definitive engineering information on the following innovative technologies:

Phase I: Process Descriptions and Limitations
- Bioremediation, Volume 1
- Chemical Treatment, Volume 2
- Soil Washing/Soil Flushing, Volume 3
- Solidification/Stabilization, Volume 4
- Solvent/Chemical Extraction, Volume 5
- Thermal Desorption, Volume 6
- Thermal Destruction, Volume 7
- Vacuum Vapor Extraction, Volume 8

Phase 2: Design and Application
- Bioremediation, Volume 1
- Chemical Treatment, Volume 2
- Liquid Extraction Technologies, Volume 3
- Solidification/Stabilization, Volume 4
- Thermal Desorption, Volume 5
- Thermal Destruction, Volume 6
- Vapor Extraction and Air Sparging, Volume 7

These monographs are available from AAEE, (410) 266-3390. Phase 1 publications cost $79.95 each or $495.00 for the full set, plus shipping and handling. Phase 2 publication prices are: $99.95 for Vol. 1; $89.95 for Vols. 3, 5, and 7; $79.95 for Vols. 2 and 4; $69.95 for Vol. 6; $495.00 for the full set.

EPA

TechDirect

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Technology Information Service

TechDirect is a free information service that highlights new publications and events of interest to site remediation and site assessment professionals. Each month, TechDirect will send you an e-mail message describing the availability of publications and information on upcoming events. For publications, the message will explain how to obtain a hard copy or how to download an electronic version.

To SUBSCRIBE on the CLU-IN website:

Go to: http://clu-in.org/techdrct

If you have any questions or comments concerning this service, please contact the U.S. EPA Technology Innovation Office at (703) 603-9910 or e-mail heimerman.jeff@epa.gov.

EPA CLU-IN

Hazardous Waste Clean-Up Information World Wide Web Site

EPA United States Environmental Protection Agency

Technology Innovation Office

CLU-IN

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Hazardous Waste Clean-Up Information

- Publications & Software
- Remediation
- Site Characterization
- Partnerships & Consortia
- International Updates
- Vendor Support
- TechDirect

Y2K

http://clu-in.org

The Hazardous Waste Clean-Up Information (CLU-IN) System provides information about innovative site characterization and treatment technologies. The web site offers a variety of information for federal and state personnel, consulting engineers, technology developers, vendors, remediation contractors, researchers, community groups, and citizens.

EPA REACH IT

WWW.EPAREACHIT.ORG

VISITT • Vendor Facts • ITT

The web-based REmediation And CHaracterization Innovative Technologies database combines information from three established EPA databases—the Vendor Information System for Innovative Treatment Technologies (VISITT), the Vendor Field Analytical and Characterization Technologies System (Vendor FACTS), and the Innovative Treatment Technologies (ITT)—to give users access to comprehensive information about treatment and characterization technologies and their applications.

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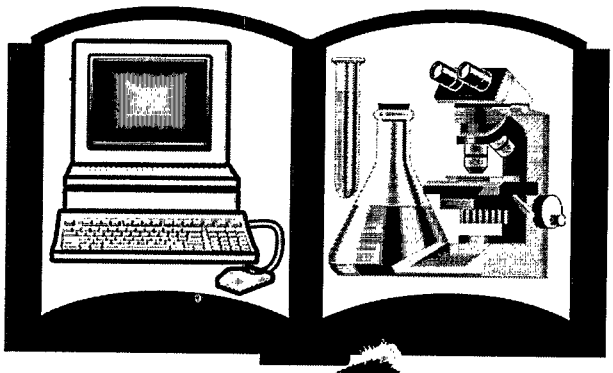
EPA 542-B-99-004

EPA

Bibliography for Innovative Site Clean-Up Technologies

August 1999 Update